International Diversification and Firm Performance:
The contingent influence of Product Diversification

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The Contingent Influence of Product Diversification

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Abstract

Despite decades of research, the relationship between international diversification (ID) and performance (P) represents a quandary in the field of International Business.. Though, there seems to be some consensus among scholars on the non-linear nature of the relationship; researchers in the field continue to urge further work in the field for a more nuanced approach to study this relationship. This paper takes a step forward to address that call by arguing that the underlying relationship between ID and P is contingent upon product diversification (PD) of the firm. In particular, we hypothesize and provide evidence that the ID and P relationship is positively moderated by PD when the firm has both high levels of both ID and PD or low levels of both ID and PD.

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Introduction

International diversification and Performance (ID and P) relationship has been examined extensively for more than three decades now. Yet, there is a substantial ambiguity about the underlying nature of this relationship (Wiersema and Bowen, 2011). The extant literature suggests that the ID and P relationship is non-linear in nature and has three stages (S-shaped) (Contractor, 2007). In addition, Ruigrok, Amann, and Wagner (2007) argue that the ID and P relationship is context dependent and therefore researchers in this field need to examine the role of moderating variables to better understand the ID and P relationship. Drawing on Ruigrok et al. (2007), we examine the moderating role of product diversification (PD) on the ID and P relationship. We nuance our argument by hypothesizing a differential impact associated with the moderating impact depending on the extent of ID and PD.

Theory and Hypotheses

International diversification has both benefits and costs associated with it. Firms experience benefits like economies of scale and scope, increase in market power over buyers and suppliers, and organizational learning through exploration (Wiersema and Bowen, 2011). These benefits increase with the increasing scale of international diversification and firms experience higher performance with increasing scale of international operations. On the other hand, there are costs related to liabilities of foreignness such as costs associated with learning about foreign markets and seeking legitimacy in different institutional environments (Kostova and Zaheer, 1999). In particular, emerging-market firms appear to incur a greater proportion of these costs as these firms are often plagued by issues relating to inferior product perception (Aulakh, Kotabe, and Teegen, 2000). However, firms can overcome some of these costs with time as they gain learning and experience (Barkema and Vermeulen, 1998) in foreign markets. In addition, there are costs associated with staffing and instituting an internal

management system and an external business network (Singla and George, 2013). Further, as firm's level of internationalization increases, costs of coordinating their activities (Lawrence and Lorsch, 1967) and information processing (Gomes and Ramaswamy, 1999; Hitt, Hoskisson, and Kim, 1997) also increase.

These reasons have led researchers to argue that the ID-P relationship is non-linear such that at low levels of internationalization, there is initially a decline in firm performance as the costs of internationalization outweigh the benefits; progressively as international diversification crosses a certain threshold, the firm's performance begins to rise. However, the performance of the firm starts declining at very high levels of internationalization due to a disproportionate increase in coordination costs. Therefore, our baseline hypothesis is that:

Hypothesis 1: International diversification and firm performance is related in the form of an S-shaped curve.

However, we contend that the above hypothesized baseline relationship between ID and P is contingent on the product diversification of the firm. To aid our theorizing, we draw on Peng's work on firms that simultaneously attempts to harness product scope and geographic scope to enhance firm performance (Peng, 2013). We base our arguments using the extent of product diversification (PD) and the level of commitment of resources towards international diversification (ID). Using Internalization Theory, we argue that a firm will increase its level of ID to the extent where the costs of internalising activities are lower than performing those activities in the external markets. Therefore, a firm's foreign expansion is optimal when the firm can create value by internalizing markets for some of its proprietary assets such as technological know-how, brand, good will, patents, and managerial skills across different countries (Buckley and Casson, 1976; Morck and Yeung, 1991; Kirca et al., 2011). Consequently, a firm would internalize the markets up to the point at which the benefits of

further internalization are greater than or equal to the costs of internalization (Buckley, 1988; Kirca et al., 2011). Given the fact that a firm with low PD is inherently limited in scope economies owing typically to higher specificity of its key resources and due to the lack of requisite capabilities that can be exploited in multiple product markets, we conjecture that the resources and capabilities of such firms can be exploited only in limited manner in foreign markets. In other words, the costs of internalizing foreign expansion are prohibitive for a firm with low PD. Therefore, a firm with low PD would benefit if it commits less resources on foreign expansion that is it has low ID.

On the other hand, a firm with high PD is present in multiple product markets and typically relies on resources and capabilities that are transferable and can be exploited in other product markets. These resources and capabilities can be usefully exploited in several foreign markets and synergies can be obtained. Furthermore, the high commitment of resources to foreign expansion (i.e., high ID) is optimal when one has multiple products to sell or multiple opportunities to exploit in foreign markets. Economies of scope are also achieved when there are multiple products and the sales of these products are leveraged through existing channels. Therefore, the benefits of internalizing foreign expansion for a firm with high PD and ID outweigh the associated costs of internalization.

Accordingly, we have the following set of hypotheses:

Hypothesis 2a: The relationship between international diversification and firm performance is positively moderated by product diversification when the extent of product diversification and the resource commitment to international diversification are both low.

Hypotheses 2b: The relationship between international diversification and firm performance is positively moderated by product diversification when extent of product diversification and the resource commitment to international diversification are both high.

Data and Methodology

We have constructed an unbalanced panel dataset for 2980 firms over a period of 11 years from 2002-2012 (both years inclusive). The dataset has 20919 firm year observations. Out of 20919 firm year observations, 4088 have foreign direct investment (FDI) or ID greater than zero and 13390 have Exports Intensity greater than zero. There are overall 3599 firm year observations, which have both FDI and exports intensity greater than zero. We have used Random Effect Panel data method for analysing the results as we are using industry dummies in our analysis which are time invariant. We have taken care of outliers before doing analysis through 95% Winsorization. Multi-collinearity issues are less problematic as the VIF factor is less than 10 for all the variables. In addition, we have used clustered robust standard errors to address heteroscadisticity. We also have lagged all the independent variables by one year to enable more reasonable assertions concerning causality. All the variables were mean centered and the interaction and powered terms were computed using residual centering procedure (Ridge,Aime, and White, 2014).

Variables

We use Tobin's Q to measure firm's performance, which is the dependent variable in this study. The key independent variables are: (1) 'International diversification' which is measured as a ratio of a firm's foreign investments to total assets (Gaur, Kumar, and Singh, 2014) and (2) 'Product diversification' is measured as the Herfindahl Index which is a sum of proportion of a firm's sales in different product segments. We use firm's size, age, leverage, business group affiliation, exports intensity as control variables. These are defined as follows: Firm size is log of firm's sales. Firm age is the difference between the year under study and the firm's year of incorporation. Firm leverage is measured as ratio of debt to equity. Business group affiliation is a dummy variable which has value equal to 1 if a firm is

an affiliate to a business group else it is equal to zero. Exports intensity is the ratio of firm's total exports to its total sales. We have also used Industry and Year dummies as control variables.

Results and Discussion

Table 1, shows the descriptive statistics of the entire dataset. Most of the variables except firm's leverage are positively correlated with firm's performance.

Table 2, depicts the results of regression analysis for the two hypotheses. Model 1 is for control variables. Model 2 shows direct effect of PD and ID. Model 3 tests hypothesis 1 with cubic effect of ID. We do not get support for hypothesis as the linear term of ID is non-significant, quadratic term is negative and significant and cubic term is positive and significant. These results do not support the S-shaped hypothesis the literature talks about. Our conjecture is that this could be owing to the fact that there are several nuances associated with this relationship, which are not being captured by the baseline ID and P relationship. Therefore as discussed earlier, our next step is to capture some of these nuances. To test hypotheses 2a and 2b, we construct two subsamples: (1) firms with high ID and high PD, (2) firms with low ID and low PD. High and low ID are categorised on the basis of mean value of ID. All the firms which have ID less than the mean value of ID are considered to be low ID firms and firms with ID greater than equal to mean value of ID are considered to be high ID firms. A similar categorisation is undertaken for PD as well on the basis of the mean value of PD. Model 4 shows results corresponding to Hypothesis 2a; we find support for this hypothesis as the interaction effects of low ID and low PD are positive and significant. Model 5 depicts results corresponding to Hypothesis 2b; we get support for this hypothesis as well as the interaction effect of high ID and high PD is positive and significant. Our results provide evidence for the contingent nature of the relationship between international

diversification and performance. Our evidence suggests that focused firms reap benefits of international diversification when they stay focused in international markets as well and diversified firms reap benefits of international diversification when they diversified in the international markets as well. These results provide an interesting nuance associated with the S curve hypothesized earlier and are possibly indicative of the need to focus further research on the moderating role of variables such as product diversification on the underlying relationship between international diversification and performance.

Limitations and further work

The current study is a preliminary attempt at uncovering the contingent nature of the relationship between international diversification and firm performance and consequently suffers from several limitations which we hope to address in the continuing work. First, our main independent variable on international diversification is characterized by a large number of zeros. These zeroes indicate that several firms have not undertaken FDI related activities. Also, some firms have started investing in foreign markets in the later years of our sample. We are sensitive to concerns owing to zero inflation in our independent variable and future work will attempt to address this to discern the robustness of these results. Second, we have not considered other constructs of our key independent variables, for instance, international diversification can be measured through an assessment of the number of subsidiaries of the internationalizing firm rather than examining the commitment to foreign expansion through the quantum of foreign investments. Data collection constraints owing to the large size of the sample precluded this effort initially, but we aim to undertake further work analysing these issues. Similarly, our focus on product diversification has been on the extent of product diversification (i.e., high or low), the type of product diversification (i.e., related or unrelated) is an interesting dimension to pursue as well. Third, our sub-sample analysis for high levels

of ID and PD is a considerably smaller sample and the robustness of the results consequently needs to be probed further. Finally, we have confined our theorizing and analysis to those combinations in which both ID and PD are either both high or low, future work can consider the possible impact of high/low combinations associated with ID and PD.

Table 1: Descriptive Statistics[a]

	Min	Max	Mean	Std. Dev.	Firm's Performance	International Diversification	Product Diversification	Business Group Dummy	Firm's Age	Firm's Size	Firm's Leverage	Exports Intensity
Firm's Performance	0.01	5.28	0.59	0.84	1							
International Diversification	0	1	0.01	0.07	0.11*	1						
Product Diversification	0	0.84	0.16	0.21	0.01	-0.05*	1					
Business Group Dummy	0	1	0.41	0.49	0.04*	0.03*	0.11*	1				
Firm's Age	5	96	27.71	18.48	0.07*	-0.05*	0.19*	0.23*	1			
Firm's Size	3.28	12.02	7.08	1.84	0.13*	0.12*	0.14*	0.42*	0.30*	1		
Firm's Leverage	0	2.21	0.36	0.34	-0.19*	-0.06*	-0.03*	0.08*	-0.05*	-0.02*	1	
Exports Intensity	0	1	0.17	0.26	0.04*	0.25*	-0.08*	-0.05*	-0.09*	0.07*	-0.04*	1

Note: [a] Number of firm year observations=20919; * significant at $p < .05$.

Table 2: Random Effect Panel Data Regression Results[a]

	Model 1	Model 2	Model 3 (H1)	Model 4 (H2a) Low ID* Low PD	Model 5 (H2b) High ID* High PD
Constant	**0.1523*** **(0.0689)**	**0.1488*** **(0.0703)**	**0.1535*** **(0.0722)**	0.1178 (0.1)	**0.5598*** **(0.2605)**
Business Group Dummy	**0.1338*** **(0.033)**	**0.1331*** **(0.033)**	**0.1307*** **(0.0329)**	**0.1457*** **(0.0365)**	0.182 (0.1425)
Exports Intensity	0.0617 (0.0461)	0.0662 (0.0462)	0.0605 (0.0462)	0.0791 (0.0582)	0.001 (0.2858)
Firm's Age	**0.0024** ** **(0.0009)**	**0.0024** ** **(0.0009)**	**0.0025** ** **(0.0009)**	**0.0024*** **(0.001)**	-0.0008 (0.0043)
Firm's Leverage	**-0.2762*** **(0.0399)**	**-0.2763*** **(0.0399)**	**-0.2759*** **(0.0398)**	**-0.192*** **(0.0412)**	**-0.7804*** **(0.2038)**
Firm's Size	**-0.0424*** **(0.0099)**	**-0.0394*** **(0.0098)**	**-0.0409*** **(0.0098)**	**-0.0622*** **(0.0117)**	**0.0196** **(0.0435)**
Product Diversification		-0.0654 (0.0447)	-0.0688 (0.0442)	-0.13 (0.1802)	-0.3744 (0.3607)
International Diversification		-0.2346 (0.1631)	-0.193 (0.1769)	7.0814 (6.9524)	-0.4496 (0.4087)
International Diversification^2			**-0.9524+** **(0.5712)**		
International Diversification^3			**3.4737*** **(1.7229)**		
International Diversification* Product Diversification				**309.6977*** **(131.1659)**	**3.9234+** **(2.0097)**
No. of firms in the sample	2980	2980	2980	2346	214
No. of firm year observations in the sample	20919	20919	20919	12116	666
Adjusted R^2	0.163	0.163	0.164	0.173	0.243

[a] * significant at p<0.001, ** means significant at p<0.01, *** means significant at p<0.0.05, + means significant at p<0.10. Coefficients corresponding to industry and year dummies are not reported for the reasons of brevity.

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